



# Adoption and spread of communitybased falls prevention programmes for older people: Themed review of ARC research

A collaboration between NIHR ARC Wessex, NIHR ARC South West Peninsula and Health Innovation Wessex

Evidence review report October 2024

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## Evidence summary

### Introduction

The Department of Health, and Social Care (DHSC) required a review of studies from the National Institute of Health and Care Research (NIHR) Applied Research Collaborations (ARCs) and the former NIHR Collaboration for Leadership in Applied Health and Care Research (CLAHRCs) on community-based falls prevention programmes to inform policy and practice.

### Aim and objectives

To identify ARC and CLAHRC studies on community-based falls prevention programmes and synthesise and translate this evidence for policy makers, practitioners, and other key stakeholders to inform implementation at scale. Review aim objectives were:

- 1. To highlight the contribution of ARC/CLAHRC research to the wider existing evidence base on falls prevention.
- 2. To provide an evidence summary for policy makers, practitioners, and other key stakeholders.
- 3. To clearly describe the challenge or problem each study sought to address.
- 4. To draw out generalisable findings about what works and how across all studies.
- 5. To synthesise findings on what health and care systems and other stakeholders need to do to enable wider adoption of successful programmes

### Methods

Studies were identified through the NIHR ARC networks via Directors, Ageing Theme leads, key researchers and websites. Studies and reports were screened and information including falls prevention programme details on effectiveness and implementation of the programme into community-based settings extracted. Additional information on programme implementation was gained directly from key researchers where appropriate. Implementation information was extracted and organised using the Context and Implementation of Complex Interventions (CICI) framework.

## Findings

Twenty-three published papers or reports including two systematic reviews plus six currently unpublished papers or reports were included in this review. Ten falls prevention programmes were identified and four were found to be effective at reducing falls and subsequently able to provide information on implementation. These programmes were Falls Management Exercise (FaME), Falls Management in care homes (Action Falls), Better Outcomes for Older people with Spinal Trouble (BOOST) and Standing Tall. Implementation and the potential for scale up of these programmes in community-based settings was drawn together into four key insights:

1. Falls prevention in older people will reduce the burden on acute health and care services and provide wider social and mental health benefits for older people.



- 2. Key components of effective programmes include trained staff, an individualised assessment tailored to the older person and behaviour change strategies.
- 3. Core principles for falls prevention requires commissioning arrangements to adopt a strategic approach and provide programme stability and sustainability assuring quality and fidelity of programme delivery.
- 4. Implementation requirements to spread and sustain evidence-based falls prevention programmes include maintaining standards, ensure a stable workforce and evaluate person outcomes and monitoring delivery of the falls prevention programme.

### Conclusion

NIHR ARC/CLAHRC research has made a significant contribution to the wider evidence base for effective community-based falls prevention programmes and specifically contributed useful information on implementation to foster adoption and spread of effective programmes.



## Introduction

Natalie Owens, from the Department of Health, and Social Care (DHSC) requested a themed review of studies from the National Institute of Health and Care Research (NIHR) Applied Research Collaborations (ARCs) and the former NIHR Collaboration for Leadership in Applied Health and Care Research (CLAHRCs) on community-based falls prevention programmes to inform policy and practice. This review draws upon evidence from key studies to formulate recommendations to enable policy decisions for policy makers, commissioners and providers of health and care services. This review highlights factors to consider when mobilising evidence-based falls prevention interventions from research into practice to improve the quality of life of older people at risk of falls.

The review identifies ARC and CLAHRC studies on community-based falls prevention programmes extracting data and what works and how, to support actionable insights for the wider adoption and spread. The review includes relevant implementation studies to draw out factors affecting adoption, in which type of system, and how these were addressed.

NIHR ARC Wessex is the lead ARC for the NIHR National Priority Programme (NPP) for Healthy Ageing, Dementia and Frailty. This NPP includes four consortium partners (Wessex, Greater Manchester, Yorkshire, and Humber, and the South West Peninsula). Two flagship projects from the NPP have a particular focus on understanding the factors important for the implementation (and scaling) of community-based falls prevention programmes:

1. FinCH Implementation study: Falls prevention in care homes (Action Falls) led by NIHR ARC East Midlands working with NIHR ARC North East North Cumbria, NIHR ARC West Midlands and NIHR ARC South London.

2. FLEXI: Falls Management Exercise (FaME) programme led by NIHR ARC East Midlands working with NIHR ARC Greater Manchester and NIHR ARC South West Peninsula.

## Background

The evidence context in which ARC and CLAHRC research contributes includes the recent World guidelines for falls prevention and management for older adults (2022)<sup>1</sup> which included ARC researchers in the guideline development task force. Whilst the guidelines make the following recommendations for falls prevention interventions in community settings, they do not provide guidance on how these programmes may be implemented. World guidelines recommend:

- Exercise programmes which include balance challenging and functional exercises with sessions three times or more weekly which are individualised, and progressed in intensity for at least 12 weeks, and continued longer for greater effect.
- If feasible, include Tai Chi and/or additional individualised progressive resistance strength training.



- For older people living in long-term care settings, it is strongly recommended that they receive individualised supervised exercise as a falls prevention strategy.
- For care home residents, it is recommended that a multifaceted approach to falls reduction includes care home staff training, systematic use of a multi domain decision support tool and implementation of falls prevention actions.

Implementation of falls prevention programmes has received less attention than evaluating intervention effectiveness. A recent review of implementation strategies used in long term care facilities found overall poor reporting of strategies for effective interventions, however education was the primary strategy used.<sup>2</sup> Another review also found reporting of strategies in studies for multifactorial falls prevention interventions for community dwelling older people poor with better use of reporting guidance needed. However, from 18 studies reviewed strategies used were not well described. Strategies identified either targeted the individual or the setting and covered tailoring, active learning, personalised risk, consciousness raising and participation. Examples of strategies for settings included providing technical assistance, use of lay health workers, increasing stakeholder influence and forming coalitions.<sup>3</sup>

This review of the ARC and CLAHRC contribution will inform on both effective falls prevention strategies and their implementation.



## Methods

The review synthesised the evidence from ARC/CLAHRC research studies of falls prevention programmes including implementation studies. The synthesis of this evidence and its translation for policy makers, practitioners, and other key stakeholders, seeks to inform implementation at scale. Review objectives were:

- 1. To highlight the contribution of ARC research to the wider existing evidence base on falls prevention.
- 2. To provide an evidence summary for policy makers, practitioners, and other key stakeholders.
- 3. To clearly describe the challenge or problem each study sought to address.
- 4. To draw out generalisable findings about what works and how across all studies.
- 5. To synthesise findings on what health and care systems and other stakeholders need to do to enable wider adoption of successful programmes

### Eligibility criteria

Criteria for inclusion and exclusion of studies were:

#### Inclusion:

- CLAHRC/ARC funded or supported studies of falls prevention
- Studies evaluating fall prevention programmes in community settings including randomised controlled trials and feasibility studies of interventions
- Qualitative, process evaluation economic evaluation or implementation studies or this information embedded in trials.
- Programmes targeting older people, including those with health conditions that are associated with a high risk of falling, such as Parkinson's
- Published papers, unpublished reports or draft papers

#### Exclusion:

- Observational and non-intervention studies
- Studies assessing trial feasibility only
- Risk assessment and physical activity-based studies.

#### Search and identification of studies

The process of identifying studies involved contacting ARC directors and Ageing theme leads and other key falls prevention researchers or study principal investigators linked to the ARCs. Searches included review of publications on ARC websites, papers, unpublished manuscripts, drafts and reports provided by ARC contacts. Other background and supportive information were also identified.



### Screening and data extraction

All material was initially screened for relevance and excluded if the inclusion criteria were not met. Screening and data extraction were undertaken by the Clinical Academic lead (VG) for this review and Health Innovation Wessex Insight lead (JC). Data extracted included characteristics of the studies including study identifiers (authors, settings, population characteristics, interventions, study design and period), methods, outcomes measured and key findings. Data extracted on implementation included intervention details on active components, mechanisms of action, delivery, dose, frequency, targeted recipients, strategies used to implement programme, implementation outcomes measure e.g., fidelity and adherence, context and setting, experiences of those delivering and receiving the programme and key conclusions. No quality appraisal of studies was undertaken.

Additional short, structured interviews were conducted with four PIs to explore in further detail on implementation and adoption challenges, successes and lessons learned. Data were subsequently organised using the Context and Implementation of Complex Interventions (CICI) framework<sup>4</sup> to facilitate drawing out key findings and insights alongside information obtained from the principal investigator interviews. This framework organises the intervention components by how they interact with the following:

- **Implementation** is an actively planned and deliberately initiated effort with the intention to bring a given intervention into policy and practise within a particular setting. These actions are undertaken by agents who either actively promote the use of the intervention or adopt the newly appraised practises. Usually, a structured implementation process consisting of specific implementation strategies is used and underpinned by an implementation theory.
- **Setting** refers to the specific physical location, in which the intervention is put into practise and interacts with context and implementation.
- **Context** reflects a set of characteristics and circumstances that consist of active and unique factors, within which the implementation is embedded. As such, context is not a backdrop for implementation, but interacts, influences, modifies and facilitates or constrains the intervention and its implementation. Context is usually considered in relation to an intervention, with which it actively interacts. It is an overarching concept, comprising not only a physical location but also roles, interactions and relationships at multiple levels.

Initial findings were presented to the review steering group and the four PIs from key studies, resulting in some rewording and clarification of key insights drawn from the findings.

## Synthesis and findings

We extracted data from 23 published papers or reports, including randomised controlled trials<sup>5-10</sup>, feasibility/pilot trials<sup>14-16</sup>, qualitative/mixed methods studies<sup>17-20</sup>, economic evaluations<sup>21 22</sup>, implementation studies<sup>23-25</sup> and systematic reviews<sup>26 27</sup> plus six currently unpublished/draft papers or reports of implementation studies. Table 1 provides an overview



of the ten fall prevention programmes we identified, the target population and their effectiveness.

Falls Prevention Programme	Target population	Brief description of programme	Evidence of effectiveness at preventing falls
Falls Management Exercise (FaME)	Community dwelling, aged 65+	24-week programme of structured and progressive exercise, delivered by trained 'Postural Stability Instructors'. Includes both supervised group and unsupervised home exercises. The programme includes strength, balance, endurance, flexibility, functional floor and gait skills.	<ul> <li>In those at low risk of falls, compared with usual care, FaME resulted in a 26% reduction in falls over 12 months, but the benefits were lost by 24 months. In older women at high risk of falls, FaME resulted in a 54% reduction in falls compared with those doing seated, unsupervised home exercises.</li> </ul>
Action Falls	Care home residents	An assessment (a checklist of 33 falls risk factors) and care planning (supported by suggested actions linked to each fall risk factor). Care home staff are trained to use the Action Falls tool and identify a Falls Champion at their home.	Reduced falls by 43% at 6 months in care home residents compared with usual care <sup>9</sup>
Better Outcomes for Older people with Spinal Trouble (BOOST)	Community dwelling, aged 65+ with Neurogenic claudication	A combined physical and psychological group programme delivered by a registered physiotherapist in 12 90-minute group sessions over 12 weeks, plus a twice weekly home programme. The programme involves a progressive, tailored programme involving leg strengthening exercises and a walking programme.	Reduced falls by 40% in those with neurogenic claudication compared with a single physiotherapy assessment with advice and education
Standing Tall	Community dwelling, aged 60+	An individually tailored, progressive, home-based programme that merges digital technology and behaviour change techniques to deliver tailored and progressive balance and functional strength exercise. The programme is undertaken for a total of 2 hours a week for 6 months.	Reduced falls by 16% and injurious falls by 20% over 2 years

Table 1 Description of Fall Prevention Programmes and their effectiveness



Multi-factorial Falls Assessment (MFFA)	Community- dwelling, aged ≥ 70 at high risk of falls	It includes assessment of fall risk factors with subsequent recommendations or onwards referral. The assessment was undertaken in general practice, the community or at a hospital by a healthcare professional.	Compared with advice alone, did not reduce falls or fractures over 18 months
Otago Exercise programme (OEP)	Community- dwelling, aged ≥ 70 at high risk of falls	An individually tailored, progressive balance, strength training and walking programme delivered by therapy staff	Compared with advice alone, OEP did not reduce falls or fractures over 18 months although there was a 22% reduction in falls at 8 months.
Occupational Therapist Home Assessment	Community dwelling, aged 65+ at risk of falling	A home environmental assessment and modification to identify personal fall- related hazards undertaken by an HCPC registered Occupational Therapist. The Westmead Home Safety Assessment was used to structure the home visit, and older people were encouraged to identify potential strategies to mitigate any fall hazards identified. Recommendations were made along with family liaison and referrals made where appropriate. Follow up contact was made after 4-6 weeks.	Did not reduce falls in older people at risk of falling compared with usual car
TechnolOGy to Support an EffecTive Home ExeRcise (TOGETHER)	Age 50+ at risk of falls	An exercise behaviour change support using the Motivate Me and My Activity Programme smartphone apps to enhance existing fall prevention programmes which included FaME and Otago programmes. Motivate me is used by health professionals to set outcome based and behavioural goals. The goals are then transferring to the My Activity Programme patient app which can then be reviewed and provide additional motivational messages.	Pilot trial has showed promising findings to support adherence to evidence-based exercise programmes to reduce falls but no evidence of effectiveness
Group Exercise for Parkinson's (GEtuP)	People with Parkinson's at high risk of falls	A 10-week physiotherapy-led group exercise programme of progressive strength and balance training and twice- weekly home exercises.	Did not reduce falls compared with usual care at 20 weeks





PDSAFE

People with Parkinson's at high risk of falls A personalised programme of strength, balance and movement strategy training delivered by physiotherapists in the person's home. The programme includes 12, 1 hour supervised sessions and three times weekly unsupervised exercise over 6 months. Did not reduce falls at 6 or 12 months compared with usual care, except in those at the moderate stages of the disease. Those with more severe Parkinson's disease experienced an increase in falls

## Effective falls prevention interventions

Four falls prevention programmes were found to be effective at reducing falls and these were subsequently implemented and evaluated. These were FaME, Action Falls, BOOST and Standing Tall (Table 1).

## Implementation of falls prevention interventions

Appendix 1 provides a synthesis of relevant implementation data extracted from 23 included papers/reports, and key informants. We synthesised this information using the Context and Implementation of Complex Interventions Framework<sup>4</sup>.

In summary, effective falls prevention programmes were delivered in community settings, such as the older person's own home, care home or sheltered accommodation, leisure centres and community-based halls or community-based NHS settings. Exercise based programmes include progressive exercises for strength and balance. Training for all types of professionals delivering the programmes was a key effective component within successful programmes. Important aspects to implementation were the need to ensure programme integrity and that the full programme was delivered to older people at risk of falls. Those commissioning these programmes need to support and ensure programme fidelity and consistency across multiple settings.

**Implementation**: Studies used different implementation frameworks and proposed modifications to one, Carroll's Implementation Fidelity Framework<sup>29</sup>. Implementation strategies included implementation toolkits, set up of community of practices to support healthcare professionals, training and resources for professionals and educational materials for older people. Behaviour change of those delivering and receiving programmes featured highly. Implementation agents involved primarily the different professionals delivering the programmes and their interaction with the older person and delivery of the programme. Measures of implementation outcomes collected included fidelity, adherence, attendance and completion rates, cost and acceptability. There was a tension between older people's attitudes, fears, motivation, personal preferences and their overall health, and the ability of healthcare professionals to balance tailoring as well as ensure fidelity to the programme.

**Setting:** Supporting the spread of falls prevention programmes within community settings requires oversight, local governance to ensure programme standardisation and consistency



of delivery across multiple providers. Providers have different priorities such as ensuring attendance numbers to group classes, and maintaining programme quality and integrity is a burden to some providers. Economic evaluations of programmes (FaME) demonstrated costs were low. Implementation challenges in settings can involve issues with the exercise space, staff availability and may need access to resources such as printing. Use of care home resident management systems requires changes and removal of older conflicting documentation on falls prevention (de-implementation) with senior care home staff driving implementation. Community settings are not always suitable for some older people e.g. those less socially orientated for group programmes, attendance in bad weather and travel issues. For staff not healthcare professionally trained, job security was a factor in supporting programme spread.

**Context:** Adoption and spread of effective community-based falls prevention programmes needs to take account of the wider system context. Context is not static but dynamic and for community-based falls prevention programmes needs to consider:

- Local conditions that drive local priorities managed by different organisational structures, such as community-based NHS settings, council supported venues and care homes, private facilities (leisure centres) and charity supported facilities.
- Benefits derived to deliver community-based programmes are influenced by successful cross-organisational partnerships.
- Funding arrangements for some of these programmes was affected by short termism in commissioning arrangements. This was due to budget constraints and competition for funds affecting programme fidelity due to inconsistency of programme delivery and insecure employment for those delivering the programme.
- Avoidance of poor practice requires setting standards with oversight of programme delivery.
- Home-based programmes supported by digital technology with professional support provided tailoring and convenience to older person on a programme. However, set up and access to internet and digital literacy can be barriers.
- Group based classes with mixed ability and needs can hinder effectiveness with a single instructor, this can be mitigated by using class assistants to support the instructor.

## Insights

The following insights were drawn from a synthesis of findings for further development into a policy briefing with supporting recommendations for action on the implementation of effective falls prevention. Initial findings were presented to the review steering group, including four PIs from key studies, resulting in some rewording and clarification.

### 1. The case for falls prevention in older people

Falls in older people place a significant burden on health and social care services<sup>30</sup> and are a source of reduced quality of life and dependency<sup>1</sup> for those who experience falls and their families. Evidence-based programmes can reduce falls amongst older people<sup>1 31</sup>. However, these programmes need to transition from a research context to real world practice and





delivery while ensuring fidelity and improving adherence. ARC research has further contributed to this evidence base by supporting and evaluating the implementation of effective programmes and identifying factors that impact on the implementation of community-based falls prevention programmes.

Commissioning arrangements with providers of programmes need to ensure the integrity of evidence-based programmes to ensure they are effective at preventing falls. These programmes can also provide wider social and mental health benefits for older people, such as increased independence and confidence.

By adopting a strategic approach to commissioning and providing evidence-based falls prevention programmes as routine care can create a shift towards prevention rather than reaction. This could result in a reduction in the need for acute health and care services for those who have fallen.

#### 2. Key components based on falls prevention type

- Across all programmes:
  - o Staff were trained in delivering the evidence-based programme
  - Programmes include an assessment and individual tailoring
  - Programmes include behaviour change strategies
- Across some (but not all) programmes:
  - Programmes included progressive strength and balance training
  - o Programmes were technology enabled

#### 3a Core principles for falls prevention for commissioning arrangements

Commissioning arrangements for evidence-based falls prevention programmes will need to be tailored to the individual programme requirements and to the setting as **'one size does not fit all'.** Falls prevention programmes may be delivered in health settings, social care settings, community-based settings or the persons' own home, e.g. leisure or community centres, care homes, or health care clinics.

Considerations include:

- Adopting a strategic approach to commissioning and aligning national policy with local priorities:
  - Developing cross organisational partnerships to influence the spread and adoption of falls prevention programmes.
  - **Public health, social care, health services need to align** and collectively adopt evidence-based falls prevention programmes via collaborative partnership working and networks.
- Falls prevention programmes need stability and sustainability and
  - Investment and funding contracts for the longer term to avoid short funding cycles





- A strategic approach to consider payment models for a mixed economy (public, voluntary and private) of provision including self-sustaining funding for those who can pay.
- Commissioning arrangements and procurement of providers should include:
  - **Monitoring and evaluation** of programme delivery to ensure fidelity and quality of programme delivery in line with the evidence base.
  - **Implementation planning** with expectations of providers and identification of falls leaders and champions at different organisational levels.
  - **Workforce expectations** that staff from different backgrounds/settings may require appropriate training
  - Sufficient staff to safely deliver evidence-based interventions.
- Shift centralising falls programmes from within healthcare and design care pathways from acute service to the home to the community and
  - Select the right programme for the right person or context e.g. care homes or community, to include setting a standard for delivery
  - Tailor service provision to different populations
  - Mobilise knowledge from research to real world practice using drivers of implementation e.g. Age UK etc.

#### 3b Core principles for falls prevention for those delivering the programme

The programme should:

- Include all core elements of the evidence-based programme
- Include an initial and ongoing assessment
- Be tailored/adapted for individuals based on initial and ongoing assessment
- Include **behaviour change strategies** to promote uptake, adherence and motivation
- Involve sufficient staff to ensure both safety and effectiveness

Those delivering the evidence-based programme should:

- Engage in **Quality Assurance** to ensure ongoing standards of practice and fidelity
- Engage in **monitoring and evaluation** of the programme to assess effectiveness
- Utilise opportunities for continuous improvement e.g. Community of Practice

## 4. Implementation requirements to spread and sustain evidence-based falls prevention programmes

Factors to support successful implementation of evidence-based falls prevention programmes are to:

- Identification falls champions, leaders and advocates
- Provide ongoing support to those delivering evidence-based programmes e.g. such as training or a Community of Practice



- Use training to manage quality issues in delivery of evidence based-falls prevention programmes
- Provide a stable workforce avoiding high staff turnover and isolation of staff, providing job security and maintenance of organisational memory
- Provide standards for widespread provision of the evidence-based falls prevention programme to manage delivery across multiple providers and staff backgrounds.
- Evaluate the evidence-based falls prevention programme based on person outcomes and other important indicators of effectiveness/success specific to the programme and setting in which the programme is delivered. Avoid measures such as how many people attend a programme.
- Those responsible for commissioning arrangements should focus on monitoring of delivery of the evidence-based falls prevention programme.

#### **Considerations for implementation**

- Improve knowledge of success factors to maintain take up and adherence
- People's own attitudes to ageing and the acceptability of attending e.g. group exercises
- Tailor programmes to manage likes and dislikes of individuals but balance with maintaining programme fidelity
- Target and tailor to specific underserved groups relevant to the population
- For in person programmes weather, travel, and locality of groups may impact attendance
- Delivery of digital programmes e.g. via apps to support exercise (accessibility and digital literacy) and care home checklists via integration with electronic record systems (ERS) (complexity of delivering via multiple ERS providers).

### Summary

ARC research provides evidence of four effective falls prevention interventions and their implementation. From twenty-three papers/reports and information from key informants, details on strategies and the challenges to implementing and spreading these effective interventions were identified and synthesised in this report. Four key insights emerged from this synthesis:

- 1. The case for falls prevention in older people will reduce the burden on acute health and care services and provide wider social and mental health benefits for older people, such as increased independence and confidence.
- 2. Identification of the key components across all effective programmes included trained staff to deliver the evidence-based programme, an assessment and individual tailoring to the older person and behaviour change strategies.
- 3. A set of core principles for falls prevention for:
  - a. commissioning arrangements to adopt a strategic approach and provide stability and sustainability shifting falls programmes from acute services to the home and community.
  - b. those delivering the programme to quality assure delivery and monitor fidelity to the falls programme.
- 4. Implementation requirements to spread and sustain evidence-based falls prevention programmes include maintaining quality training and standards for provision of the





falls prevention programme, ensure a stable workforce and evaluate person outcomes and monitor delivery of the evidence-based falls prevention programme.

Other considerations for implementation to improve success and adherence included balancing tailoring to meet individual needs including underserved populations with maintaining programme integrity. In addition, delivery of digital programmes needs further attention.

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